Climate Outlook for January (2012) through April (2012)

Recent Drought and Rainfall Trends in West Central Texas

An active southern stream weather pattern brought periodic rainfall and even snowfall to West Central Texas over the past 2 months. The yellow colors below in Figure 1. shows the region that experienced below normal precipitation, while the gray areas indicated the region that received near to above normal precipitation for the past 60 days.

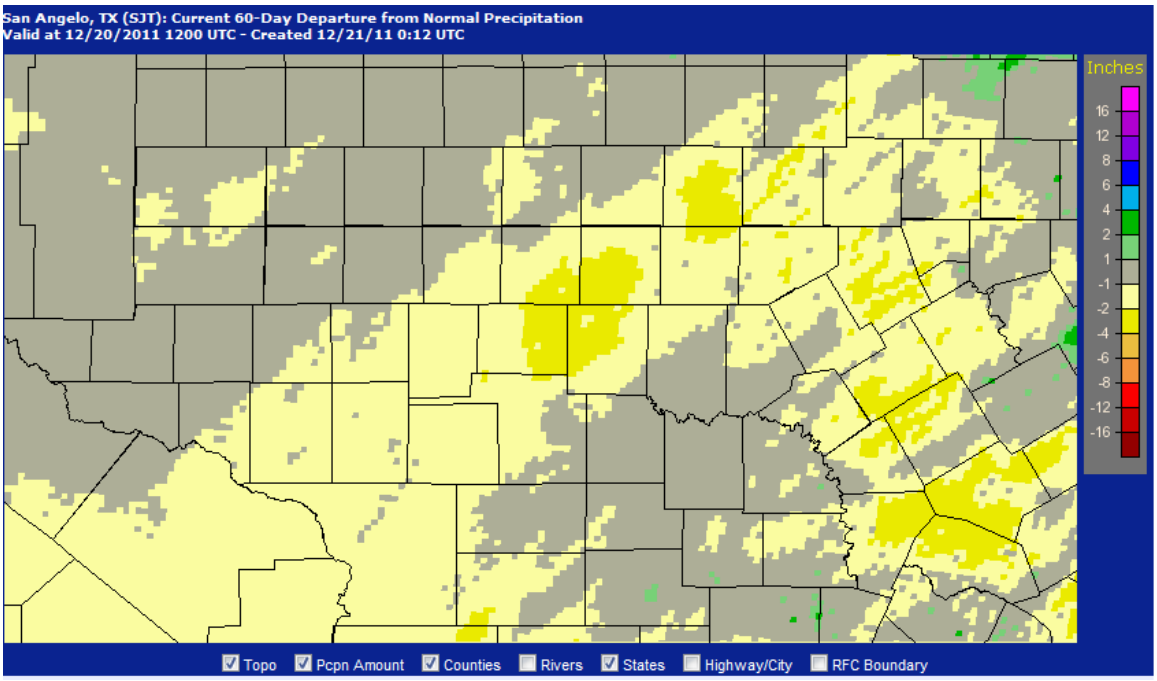

Figure 1: Departure from Normal Rainfall for the past 60 days, ending December 20.

The latest U.S. Drought Monitor for Texas (Figure 2), issued through the National Drought Mitigation Center on December 13, showed somewhat of an improvement across the parts of Texas. In West Central Texas, drought conditions in a relative sense improved slightly, from the exceptional to the severe and extreme categories, from the eastern and southern parts of the Big Country southward across the Concho Valley and into Central Texas.

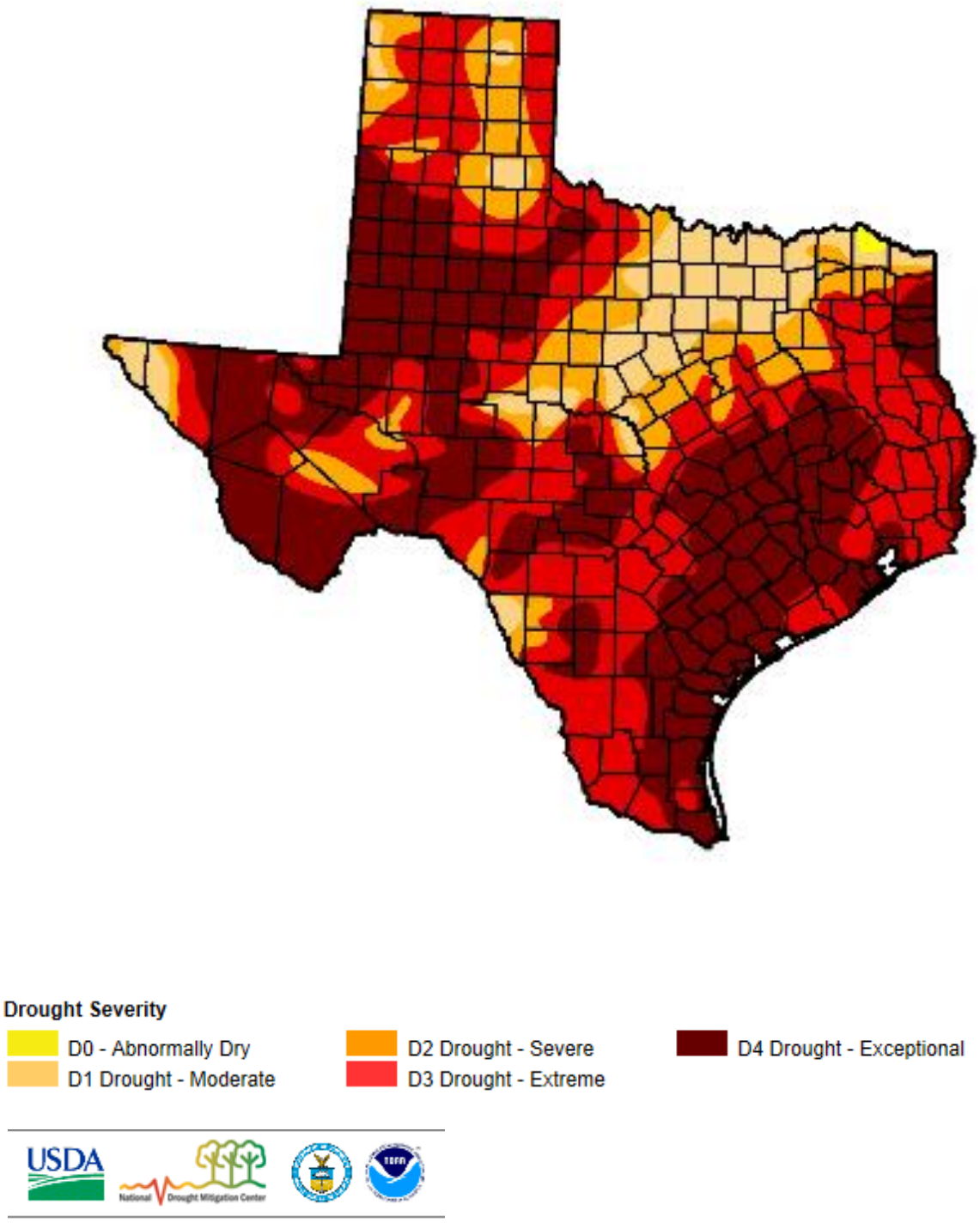

Figure 2: U.S. Drought Monitor for Texas (December 13th)

Status with the Climate System

La Nina conditions redeveloped at the beginning of this fall season and it is expected to continue into March before beginning to gradually weaken by April. La Nina is associated with a periodic cooling of the waters in the equatorial part of the Pacific Ocean. La Nina conditions were present during the last winter season, and continued into the spring of this year. A noteworthy item about recurring La Nina events can be seen from the historical record. The record for La Nina (and El Nino) events, dating back to 1950, shows that "back to back" occurrences of La Nina are not uncommon. The last such occurrence was with the La Nina episode which began in 1998 and ended in 2000, spanning two consecutive winter seasons.

La Nina and its Importance

La Nina (and El Nino) conditions are the best understood, in terms of their long-term impacts on weather patterns worldwide. Their developments have far-reaching effects on global circulation patterns which, in turn affects the position and strength of jet streams. This has an important influence on the strength and track of storm systems.

Over the years, specific weather patterns have been observed, in association with La Nina (and El Nino) conditions, especially for the stronger events. This has led to a better understanding of their effects on a large scale. Their effects can be accounted for in the long-range outlooks.

The effects of La Nina typically start to become more noticeable in November, and usually have the greatest influence during the winter season months of December through February. The effects can linger into the spring season.

Climate Outlook for January through March (2012)

The Climate Prediction Center (CPC) indicates that La Nina conditions will continue through the upcoming winter season of 2011-2012. From recently observed trends and climate model forecasts, a weak to moderate La Nina event is anticipated.

The Climate Prediction Center temperature outlooks for January through March (Figure 3), indicates an enhanced probability for temperatures to average above normal across West Central Texas. The CPC precipitation outlooks for January through March (Figure 4), shows an enhanced probability for precipitation to be below normal, for all of West Central Texas.

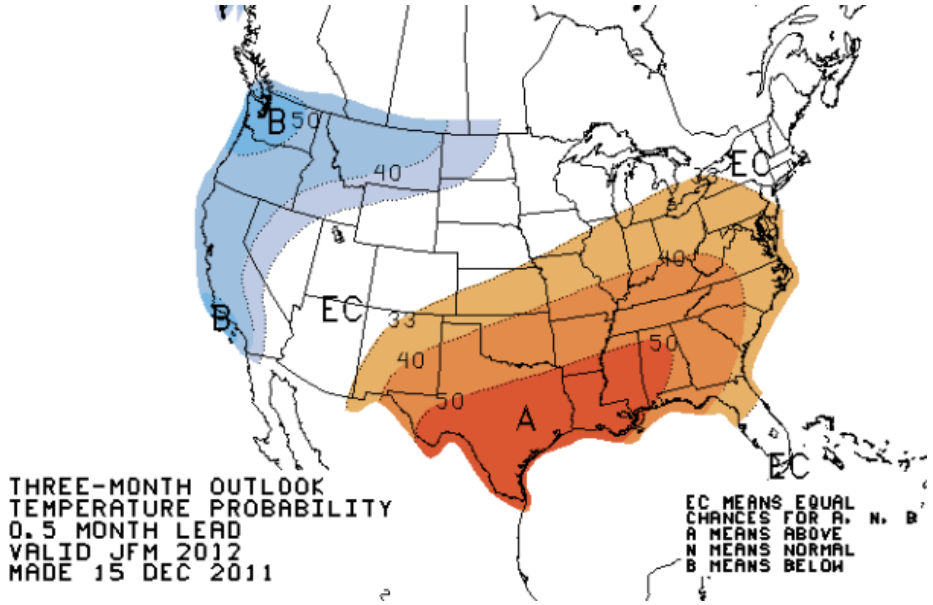

Figure 3: Climate Prediction Center Outlook for Temperature, November-January

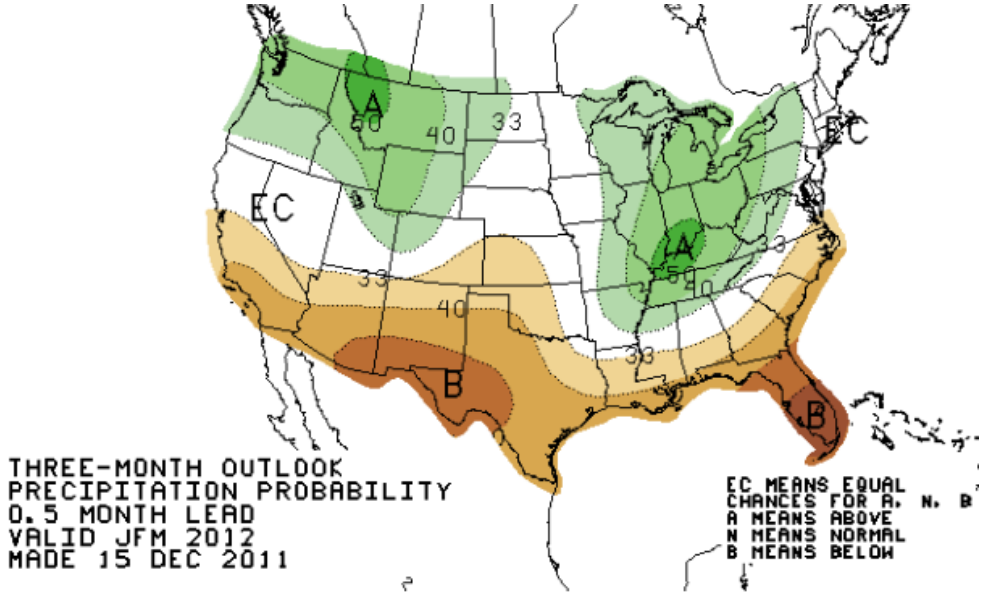

Figure 4: Climate Prediction Center Outlook for Precipitation, November-January

The results of local precipitation studies show that, for moderate to strong La Nina events, average winter season precipitation is below normal at stations across West Central Texas. This is consistent with what is indicated in the Outlooks from the Climate Prediction Center.

In Figure 5 below, the most recent U.S. Seasonal Drought Outlook, issued by the Climate Prediction Center on December 15, indicates that drought conditions will most likely persist across all of Texas, during the January-March time period. With La Nina in place, it is unlikely that our region will receive enough rainfall to alleviate the ongoing drought.

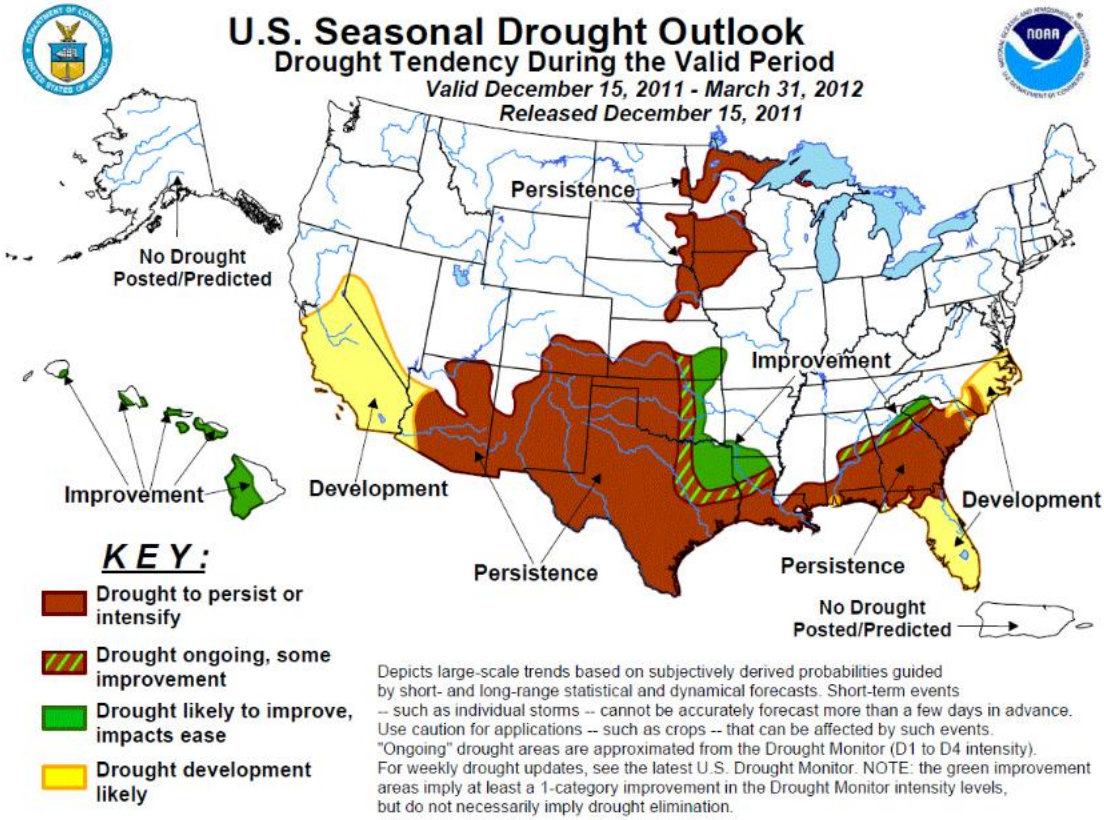

Figure 5: U.S. Seasonal Drought Outlook, valid December 15, 2011- March 31, 2012

Implications with Patterns Influenced by La Nina

When weak to moderate La Nina events occur, the effects can influence regional weather patterns which can help to bring about the following in West-Central Texas:

- Worsening of ongoing drought conditions.
- Increased fire weather concerns, as grasses become cured and vegetation becomes dormant. An unfavorable track of storm systems can result in extended periods with lack of rainfall, and where repeat weather events occur with strong, gusty winds which are accompanied by intrusions of warm and very dry air into our region.

Other Considerations

Even though there are pattern similarities with La Nina, there are unique characteristics with each new season, and no two events are exactly alike. Even when a La Nina pattern prevails overall in a winter season, certain patterns can develop which bring temporary intrusions of very cold air, or temporary wet weather periods. An example of this type of temporary pattern disruption has been with the recent precipitation trends this December. Although La Nina conditions were present, the development of a northern and southern stream storm track or a “split flow” pattern has brought beneficial rainfall to the region. The northern stream has dislodged cold air masses into Texas while the southern stream generated potent Pacific upper level disturbances that have traversed the region. The combination of these systems has resulted in beneficial precipitation across West Central Texas.

Concluding Remarks

The NOAA Climate Prediction Center indicates that the La Nina conditions will strengthen and will continue through the upcoming winter season. The Outlooks January-April show enhanced probabilities for precipitation to be below normal, and for temperatures to average above normal, across all of West Central Texas. The U.S. Seasonal Drought Outlook from CPC indicates that drought conditions will most likely persist for all of Texas through April.